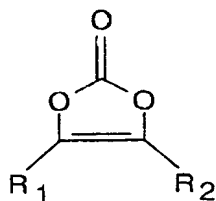
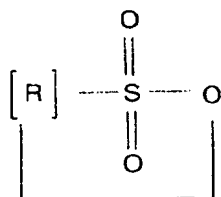


**Claims**

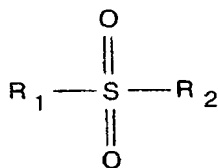
1. A cathode for a battery, comprising a metal hydroxide  
having a specific surface area of  $1 \text{ m}^2/\text{g}$  or more, as a cathode  
5 additive.
2. The cathode for a battery according to claim 1, wherein  
the specific surface area of the metal hydroxide is  $2.5 \text{ m}^2/\text{g}$   
or more.
- 10 3. The cathode for a battery according to claim 1, wherein  
the cathode for a battery comprises the metal hydroxide in  
the amount of greater than 0 wt% and less than 10 wt%.
- 15 4. The cathode for a battery according to claim 1, wherein  
the metal hydroxide is at least one compound selected from  
the group consisting of  $\text{Al}(\text{OH})_3$ ,  $\text{Mg}(\text{OH})_2$ ,  $\text{Ca}(\text{OH})_2$ ,  $\text{LiOH}$  and  
 $\text{NaOH}$ .
- 20 5. A lithium ion battery comprising a cathode, an anode and a  
non-aqueous electrolyte, wherein the cathode is the cathode  
for a battery as defined in any one of claims 1 to 4.
6. The lithium ion battery according to claim 5, wherein the  
25 electrolyte comprises at least one additive selected from the  
group consisting of the compounds represented by the  
following formula 1 to formula 4:  
[formula 1]



[formula 2]

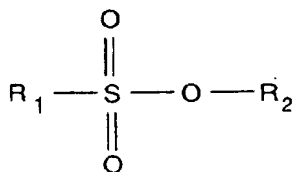


[formula 3]



5

[formula 4]



wherein, each of  $R_1$  and  $R_2$  is independently selected from the group consisting of H, a  $C_1$ - $C_5$  alkenyl group, a  $C_1$ - $C_5$  alkyl group, a halogen atom, and a phenyl group and a phenoxy group non-substituted or substituted with a  $C_1$ - $C_5$  alkyl group or a halogen atom (formulae 1,3 and 4); and  
 R is a  $C_1$ - $C_5$  alkenyl group or a  $C_1$ - $C_5$  alkyl group (formula 2).

7. The lithium ion battery according to claim 6, wherein the compound represented by formula 1 is selected from the group

consisting of VC (vinylene carbonate) and methyl esters, and  
the compound represented by any one of formula 2 to formula 4  
is selected from the group consisting of propane sultone  
(PS), propene sultone, dimethyl sulfone, diphenyl sulfone,  
5 divinyl sulfone and methanesulfonic acid.